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**PERSUASIVE MULTIMEDIA MODEL IN TRUANCY AWARENESS  
(PMTA)**

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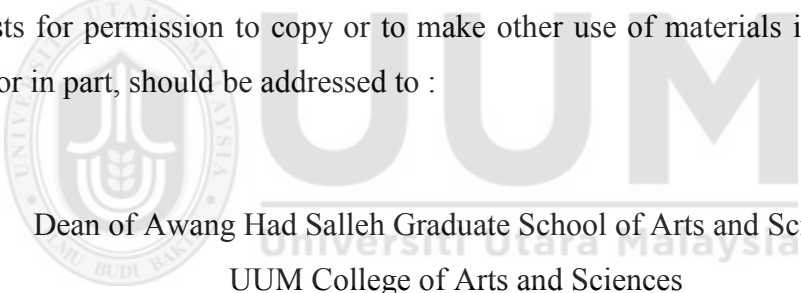
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## Abstrak

Multimedia persuasif adalah penyelidikan yang berkaitan dengan penggunaan multimedia untuk memujuk ke arah perubahan positif dalam sikap dan tingkah laku seseorang. Berkaitan isu ponteng, dapatan menunjukkan pelajar yang tidak mempunyai kesedaran akan terlibat dalam masalah ponteng. Tambahan pula, banyak penyelidikan akademik hanya memberi tumpuan kepada faktor penyebab berkaitan ponteng dan bukannya meningkatkan kesedaran terhadap tingkah laku ponteng. Sebaliknya, dengan begitu banyak penekanan diberikan kepada penggunaan bahan multimedia di sekolah-sekolah, adalah sangat mengejutkan kurangnya kajian berkenaan penggunaan multimedia sebagai pendekatan untuk meningkatkan kesedaran terhadap ponteng. Dapatan kajian terdahulu juga menunjukkan kurangnya model reka bentuk dan kaedah sistematik yang bersesuaian dengan teori utama berserta dengan komponen dan strategi dalam pembangunan multimedia persuasif untuk kesedaran ponteng. Oleh itu, untuk mencapai objektif utama, beberapa sub-objektif telah dibentuk: (1). Untuk menentukan komponen dan elemen multimedia yang sesuai untuk pembangunan model PMTA, (2). Untuk merangka model multimedia persuasif dalam kesedaran ponteng (PMTA), (3). Untuk mengesahkan model PMTA melalui semakan pakar dan prototaip dan (4) Untuk menilai kesedaran pelajar terhadap ponteng bagi model PMTA melalui prototaip. Kajian ini menggunakan kaedah Penyelidikan Sains Reka Bentuk sebagai rangka proses penyelidikan. Dalam mencapai objektif (1) dan (2), kajian literatur dan analisis perbandingan dijalankan. Manakala untuk objektif (3) dan (4) ia dicapai melalui semakan pakar dan ujian eksperimen. Terdapat empat sumbangan besar bagi kajian ini: (i). Pembangunan model PMTA yang merangkumi garis panduan untuk membangunkan kandungan multimedia yang persuasif, (ii). Instrumen Q-PMTA untuk mengukur tahap kesedaran ponteng pelajar, (iii). Prototaip berfungsi PMTA untuk mengesahkan model PMTA, dan (iv) Keputusan ujian eksperimen untuk mengukur kesedaran terhadap ponteng. Dapatan menunjukkan bahawa model PMTA menyediakan garis panduan yang berguna kepada pembangun untuk pembangunan aplikasi multimedia serta sumbangan secara teori dan praktikal kajian. Sebagai kesimpulan, penerapan model PMTA menyediakan garis panduan untuk membangunkan kandungan multimedia yang persuasif untuk menggalakkan kesedaran yang terhadap ponteng dan untuk meningkatkan pengalaman pembelajaran terhadap kesedaran ponteng.

**Kata Kunci:** Teknologi Persuasif (PT), Kesedaran Ponteng, Multimedia, Model Reka Bentuk.

## Abstract

Persuasive multimedia is a research related to the use of multimedia to persuade for positive change in attitudes and behaviours. In the issues of truancy, it shows that, students who do not have awareness will involve in truancy problem. In addition, many academic researches appeared to focus on causal factor related to truancy rather than enhancement of awareness towards truancy behaviour. On the contrary, with so much emphasis placed on the use of multimedia material in schools, it is surprisingly found, very little indication exists in using multimedia as an approach for truancy awareness. Previous finding reveals that, there is a lack of design model and methods that systematically tailor the crucial theories, component, and strategies in the development of persuasive multimedia for truancy awareness. Within this context, the main purpose of this study is to propose a persuasive multimedia model in truancy awareness (PMTA) for secondary school students. This model serves as systematic approach, which includes fundamental components for developers to develop truancy awareness application. Therefore, in order to accomplish the main objective, a number of sub objectives are formed: (1). To determine the suitable persuasive multimedia components and elements for PMTA model development, (2). To formulate a persuasive multimedia model in truancy awareness (PMTA), (3). To validate the PMTA model through expert review and prototyping, and (4) To assess student's perceived truancy awareness of the PMTA model through prototyping. This study adopts the Design Science Research (DSG) methodology as the framework of the research process. In achieving objective (1) and (2), a literature review and comparative analysis were conducted. Whereas for objective (3) and (4) it was achieved through expert review and experimental testing. There are four major contributions of this study: (i). PMTA model development, which comprises the guideline for developing persuasive multimedia content, (ii). Q-PMTA instrument to measure student's perceived awareness, (iii). Functional PMTA prototype to validate the PMTA model and (iv). Experimental testing results to measure perceived truancy awareness. Findings demonstrate that the PMTA model exhibits useful development for multimedia application as well as providing theoretical and practical contributions of the study. In conclusion, the adoption of PMTA model provides guidelines for developing persuasive multimedia content to promote truancy awareness and contribute to enhance the learning experience towards truancy awareness.

**Keywords:** Persuasive technology (PT), Truancy awareness, Multimedia, Design model,

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## **List of Abbreviations**

PMTA	Persuasive Multimedia Truancy Awareness
DSR	Design Science Research
CTML	Cognitive Theory of Multimedia Learning
HCI	Human-Computer Interaction
CMC	Computer-Mediated Communication





## List of Publications and Awards

### Journals:

1. **Persuasive Technology: A Systematic Review on the Role of Computers in Awareness Study.**  
Mohamad Lutfi Dolhalit, Sobihatun Nur Abdul Salam, Ariffin Bin Abdul Mutalib.  
*Jurnal Teknologi Vol 77, No.29*. [Scopus Index]  
URL: <http://www.jurnalteknologi.utm.my/index.php/jurnalteknologi/article/view/6806/4509>.
2. **A Preliminary Study: The Availability of Multimedia Applications in Truancy Awareness.**  
Mohamad Lutfi Dolhalit, Sobihatun Nur Abdul Salam, Ariffin Bin Abdul Mutalib  
*International Journal of Interactive Digital Media (IJIDM)*, Vol. 4(1), ISSN 2289-4098, e-ISSN 2289-4101
3. **A Review on Persuasive Technology Strategy in Awareness Study**  
Mohamad Lutfi Dolhalit, Sobihatun Nur Abdul Salam, Ariffin Bin Abdul Mutalib  
*Indian Journal of Science and Technology (IJST)*. [Scopus Index].  
<http://www.indjst.org/index.php/indjst/article/view/100826>
4. **Towards the Development of Persuasive Multimedia Model of Truancy Awareness (PMTA): Review of Research**  
Mohamad Lutfi Dolhalit, Sobihatun Nur Abdul Salam, Ariffin Bin Abdul Mutalib, Muhamad Saiful Bahri Yusoff  
*Journal of Engineering and Applied Sciences* 12(16): 4215-4221, 2017, ISSN: 1816-949X. Medwell Journal 2017. [Scopus Index]
5. **Persuasive Multimedia in Truancy Awareness (PMTA): Integration of Persuasive Design Principles.**  
Mohamad Lutfi Dolhalit, Sobihatun Nur Abdul Salam, Ariffin Bin Abdul Mutalib, Muhamad Saiful Bahri Yusoff  
*Journal of Telecommunication, Electronic and Computer Engineering (JTEC)* 2018, 10(1-11), 33-37. [Scopus Index].
6. **Persuasive Multimedia in Truancy Awareness (PMTA): User Evaluation on “Kitakan Kawan”**  
Mohamad Lutfi Dolhalit, Sobihatun Nur Abdul Salam, Ariffin Bin Abdul Mutalib, Muhamad Saiful Bahri Yusoff  
*Journal of Advanced Research in Dynamic and Control System (JARDCS)*. [Scopus Index]. <http://www.jaracs.org/abstract.php?archiveid=5059&action=fulltext&uri=/abstract.php?archiveid=5059>.

## Conference Proceedings:

1. **Exploring Persuasive Multimedia Techniques in Attitude and Behavior Change: A Comparative Study.**  
**Mohamad Lutfi Dolhalit**, Sobihatun Nur Abdul Salam  
*Procedia-Social and Behavioral Sciences*, 155, 386-391. Springer. [Scopus Index]  
URL: <http://www.sciencedirect.com/science/article/pii/S1877042814057760>
2. **Critical Analysis in Proposing Persuasive Multimedia Model of Truancy Awareness (PMTA).**  
**Mohamad Lutfi Dolhalit**, Sobihatun Nur Abdul Salam, Ariffin Bin Abdul Mutalib, Muhamad Saiful Bahri Yusoff  
*Proceeding Knowledge Management International Conference (KMICe) 2016*. [WOS Index]  
URL: [http://www.kmice.cms.net.my/kmice2016/files/KMICe2016\\_eproceeding.pdf](http://www.kmice.cms.net.my/kmice2016/files/KMICe2016_eproceeding.pdf)
3. **Experimental Testing on Persuasive Multimedia Application in Truancy Awareness (PMTA): “Kitakan Kawan”.**  
**Mohamad Lutfi Dolhalit**, Sobihatun Nur Abdul Salam and Ariffin Bin Abdul Mutalib  
*Proceeding SMMTC Postgraduate Symposium 2018*, e-ISBN 978-967-0910-77-2, UUM Press.



## Awards and Recognitions

### A. Best Paper Award

1.

Title: **Persuasive Technology: A Systematic Review on the Role of Computers in Awareness Study.**

Author: Mohamad Lutfi Dolhalit, Sobihatun Nur Abdul Salam, Ariffin Bin Abdul Mutalib.

Conference: Creative Industry International Conference (CIIC) 2015: 4 - 5 October 2015 || Universiti Utara Malaysia.

2.

Title: **Persuasive Multimedia in Truancy Awareness (PMTA): User Evaluation On “Kitakan Kawan”**

Author: Mohamad Lutfi Dolhalit, Sobihatun Nur Abdul Salam, Ariffin Bin Abdul Mutalib, Muhamad Saiful Bahri Yusoff

Conference: International Conference on Human and Multimedia Creativity, ICON-HMC’17, 4-5 October 2017, Universiti Utara Malaysia

### B. Nominated Best Paper Award

Title: A Review on Persuasive Technology Strategy in Awareness Study

Author: Mohamad Lutfi Dolhalit, Sobihatun Nur Abdul Salam, Ariffin Bin Abdul Mutalib.

Conference: 4th International Conference on Research and Innovation in Information Systems – 2015 (ICRIIS’15). UTM, Melaka.

### C. Silver Awards

**Persuasive Multimedia in Truancy Awareness (PMTA): “Kitakan Kawan”**

SIRIM Invention, Innovation & Technology Expo (SI2TE) 2017

Kulim Hi-Tech Park, Kulim, Kedah. 18th to 19th April 2017

Sobihatun Nur Abdul Salam, Mohamad Lutfi Dolhalit, Ariffin Bin Abdul Mutalib, Muhamad Saiful Bahri Bin Yusoff.

### D. Bronze Awards

**Persuasive Multimedia in Truancy Awareness (PMTA): “Kitakan Kawan”**

Persidangan Dan Ekspo Ciptaan Institusi Tinggi Antarabangsa 2017 (Pecipta2017)

Stadium Tertutup Gong Badak Terengganu. Kuala Terengganu 7-9 Oktober 2017

Sobihatun Nur Abdul Salam, Mohamad Lutfi Dolhalit, Ariffin Bin Abdul Mutalib, Muhamad Saiful Bahri Bin Yusoff.

#### **E. Gold Awards**

**PM-TAG:Persuasive Multimedia Truancy Awareness Game.**

Innovative Research, Invention and Application Exhibition (I-Ria) 2018

Dewan Muadzam Shah, Universiti Utara Malaysia. 6th to 7th May 2018

Sobihatun Nur Abdul Salam , Mohamad Lutfi Dolhalit, Ariffin Bin Abdul Mutalib,  
Muhamad Saiful Bahri Bin Yusoff.

#### **F. Silver Awards**

**PM-TAG:Persuasive Multimedia Truancy Awareness Game.**

29th International Invention, Innovation & Technology Exhibition ITEX 2018.

Kuala Lumpur Convention Centre, 10th to 12th May 2018

Sobihatun Nur Abdul Salam , Mohamad Lutfi Dolhalit, Ariffin Bin Abdul Mutalib,  
Muhamad Saiful Bahri Bin Yusoff.



# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Overview**

This chapter describes background of study, which deliberates on issues that lead to the motivation aspects of the study, specification of the problem, preliminary investigation, and derivation of research gap and formulation of a research objective. This chapter also discusses the research scope, limitation, contribution of research, theoretical and research framework, as well as operational definitions of terms used throughout the study.

### **1.2 Background of Study**

The changes in economic and technological development have brought great influence on the socio-cultural and Malaysian society. However, these changes affect the community through the increase of social problems, especially truancy in schools. Truancy contributed almost a one third (32%) of all school delinquencies (Ministry of Education Report on Students Discipline, 2012). Truancy also found to be prevalent and have significant relationship with other disciplines problems within secondary schools (Flannery, Frank & Kato, 2012; Tunggak, Ngadi & Naim, 2015). With the high prevalence of truancy among secondary students, there is a basis to conduct early prevention towards truancy.

## REFERENCES

- Abdullah, M. C., Lee, P. G., Samsilah, R., & Maznah, B. (2015). Emotional Intelligence and At-Risk Students. *SAGE Open*, 5. <https://doi.org/10.1177/2158244014564768>
- A.Ghani, M. F., Radzi, N. M., Ghavifekar, S., Kenayatullah, H. B., & Muhamad, M. (2014). Pengurusan Displin Murid di Sekolah Kawasan Bandar dan Luar Bandar: Perspektif Pemimpin Sekolah. *Jurnal Kepimpinan Pendidikan*, 1(1), 7–40.
- Abdullah, M. C., Lee, P. G., Samsilah, R., & Maznah, B. (2015). *Emotional Intelligence and At-Risk Students*. SAGE Open, 5. <http://doi.org/10.1177/2158244014564768>
- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.), *Action-control: From cognition to behavior* (pp. 1 1-39). Heidelberg: Springer.
- Alan R. Hevner, Salvatore T. March, Jinsoo Park, and S. R. (2004). Design Science in Information Systems Research. *MIS Quarterly*, 28(1), 75–105. Retrieved from <http://www.desrist.org/design-research-in-information-systems/>
- Alessi, S. M., & Trollip, S. R. (2000). *Multimedia for learning: Methods and development*. Allyn & Bacon, Inc..
- Animasahun, R. (2013). Teaching Thinking: Using a Creativity Technique for the Eradication of Truancy among Students to Enhance the Success of Universal Basic Education in Nigeria. *British Journal of Education, Society & Behavioural Science*, 3(4), 560–573. <https://doi.org/10.9734/BJESBS/2013/4399>
- Arjang, H., Jabari, L., & Takalo, S. (2014). The effective self-awareness skills teaching on reduce the high-risk behavior among high school boy students. *Scientific Journal of Review*, 3, 837–841. <https://doi.org/10.14196/sjr.v3i8.1664>
- Ashley, K., Ennis, L., & Owusu-Ansah, A. (2012). An exploration of middle school students' perceptions of personal adolescent wellness and their connectedness to school. *International Journal of Social ...*, (January), 74–89. Retrieved from <http://ijsse.com/sites/default/files/issues/2012/volume 2 issue 1 Jan 2012/paper 7/paper-07.pdf>
- Aslina, A., & Suradi, S. (2011). The effect of psychological intervention in reducing disciplinary cases among malaysian secondary school students. *Procedia - Social and Behavioral Sciences*, 30, 2592–2596. <https://doi.org/10.1016/j.sbspro.2011.10.507>
- Asmawati, S., Abdul Rahman, M. A., & Norliana, K. (2012). Factors causing student absenteeism according to peers. *International Journal of Arts and Commerce*, 1(4), 342–350.
- Attwood, G., & Croll, P. (2006). Truancy in secondary school pupils: prevalence, trajectories and pupil perspectives. *Research Papers in Education*, 21(4), 467–484. <https://doi.org/10.1080/02671520600942446>
- Azliza, O., & Wan Ahmad Jaafar, W. (2013). A Preliminary Investigation: Children's Awareness of Child Sexual Abuse in Malaysia. *International Journal of Social Science and Humanity*, 2(3), 242–247.

- <https://doi.org/10.7763/IJSSH.2012.V2.103>
- Beaudouin-lafon, & Mackay, W. E. (2003). Chapter 52 Prototyping Tools and Techniques. *Human Computer Interaction—Development Proces*, 122–142.
- Braden, A. M., Osborne, M. S., & Wilson, S. J. (2015). Psychological intervention reduces self-reported performance anxiety in high school music students. *Frontiers in Psychology*, 6(March), 1–9. <https://doi.org/10.3389/fpsyg.2015.00195>
- Breda, M. J. van. (2017). School Truancy: An Old Problem Which Requires New and Innovative Solutions. *Journal of Psychology*, 4(2), 79–85. <https://doi.org/10.1080/09764224.2013.11885496>
- Breda, M. J. Van. (2013). School Truancy : An Old Problem Which Requires New and Innovative Solutions. *Journal Psychology*, 4(2), 79–85.
- Buchenau, M., & Suri, J. F. (2000, August). Experience prototyping. In Proceedings of the 3rd conference on *Designing interactive systems: processes, practices, methods, and techniques* (pp. 424-433). ACM.
- Chalmers, David (1997). The Conscious Mind: In Search of a Fundamental Theory. Oxford: Oxford University Press. p. 225. ISBN 978-0195105537
- Cacioppo, J. T., Petty, R. E., & Crites, S. L. (1994). Attitude Change. In *Encyclopedia of Human Behavior* (1st ed., pp. 261–270). Academic Press Ohio State University. Retrieved from <http://psychology.uchicago.edu/people/faculty/cacioppo/jtcreprints/cpc94.pdf>
- Caraban, A., Ferreira, M. J., Belim, V., Lyra, O., & Karapanos, E. (2014). SmartHolder : Sensing and Raising Families ' Awareness of Tooth Brushing Habits. *Interaction Design and Children*, 341–344.
- Catherine, U. O. (2011). Individual Variables and Principals ' Emotional Management Competencies in Secondary Schools in Rivers State. *Global Academic Group*, (2001), 1–11.
- Chatterjee, S., & Price, A. (2012). Healthy living with persuasive technologies: framework, issues, and challenges. *Journal of the American Medical Informatics Association : JAMIA*, 16(2), 171–178. <https://doi.org/10.1197/jamia.M2859>
- Cialdini, R. B. (2001a). Harnessing the Science of Persuasion A Conversation with Mark Morris. *Harvard Business Review*, (72-79).
- Cialdini, R. B. (2001b). Harnessing the Science of Persuasion A Conversation with Mark Morris. *Harvard Business Review*, (R0109D), (72-79).
- Creswell, J. W., Klassen, A. C., Plano Clark, V. L., & Smith, K. C. (2011). Best practices for mixed methods research in the health sciences. Bethesda (Maryland): National Institutes of Health, 2013, 541-545.
- Crisp, R. J., & Turner, R. N. (2010). *Essential social psychology*. London: Sage Publications.
- Daud, N. A., Sahari@Ashaari, N., & Muda, Z. (2013). An Initial Model of Persuasive Design in Web based Learning Environment. *Procedia Technology*, 11(Iceei), 895–902. <https://doi.org/10.1016/j.protcy.2013.12.273>
- Dalton, P., Maute, C., Oshida, A., Hikichi, S., & Izumi, Y. U. (2008). The use of semantic differential scaling to define the multidimensional representation of odors. *Journal of sensory studies*, 23(4), 485-497.
- Dembo, R., Briones-Robinson, R., Wareham, J., Winters, K. C., Ungaro, R., &

- Schmeidler, J. (2014). Brief Intervention Impact on Truant Youth Attitudes to School and School Behavior Problems: A Longitudinal Study. *Journal of Educational and Developmental Psychology*, 4(1). <https://doi.org/10.5539/jedp.v4n1p163>
- Dembo, R., Wareham, J., Schmeidler, J., Briones-Robinson, R., & Winters, K. C. (2014). Differential Effects of Mental Health Problems Among Truant Youths. *The Journal of Behavioral Health Services & Research*. <https://doi.org/10.1007/s11414-014-9435-6>
- Dousay, T. A. (2015). Reinforcing multiliteracies through design activities. In *Essentials of Teaching and Integrating Visual and Media Literacy* (pp. 27–47). Switzerland: Springer International Publishing. <https://doi.org/10.1007/978-3-319-05837-5>
- Dowrick, P. W., Back, L. T., & Mills, N. C. (2015). School Failure and School Success. In T. P. Gullotta, M. A. Evans, & R. W. Plant (Eds.), *Handbook of Adolescent Behavioral Problems: Evidence-Based Approaches to Prevention and Treatment* (2nd Editio, pp. 395–414). London; New York: Springer New York Heidelberg Dordrecht London. <https://doi.org/10.1007/978-1-4899-7497-6>
- Ekstrand, B. (2015). What it takes to keep children in school: a research review. *Educational Review*, 67(4), 459-482.
- Fay, D. (2007). Student storytelling through sequential art. *English Language Teaching Forum*, 45(3), 2–11.
- Fishbein, M. & Ajzen, I. (1975). Belief, attitude, intention, and behavior: An introduction to theory and research. Reading, MA: Addison-Wesley.
- Flannery, K. B., Frank, J. L., & Kato, M. M. (2012). School Disciplinary Responses to Truancy: Current Practice and Future Directions. *Journal of School Violence*, 11(2), 118–137. <https://doi.org/10.1080/15388220.2011.653433>
- Fogg, B. J. (1998). Persuasive computers: perspectives and research directions. *Proceedings of the SIGCHI Conference on Human ...*, (April), 225–232. Retrieved from <http://dl.acm.org/citation.cfm?id=274677>
- Fogg, B. J. (1999). Persuasive Technologies. *Communications Of the ACM*, 42(5), 26–29.
- Fogg, B. J. (2003a). Persuasive Technology: Using Computers to Change What We Think and Do. *Journal of the American Society for Information Science and Technology*, 54(12), 283. <https://doi.org/10.1002/asi.10332>
- Fogg, B. J. (2003b). *Persuasive Technology Using Computers to Change What We Think and Do* (1st ed.). San Francisco: Morgan Kaufmann Publishers.
- Fogg, B. J. (2009). Creating Persuasive Technologies : An Eight-Step Design Process. In *Proceedings of the 4th International Conference on Persuasive Technology* (p. 44). ACM. (Vol. 91, pp. 1–6). ACM Publisher. <https://doi.org/10.1145/1541948.1542005>
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2009). School Engagement : Potential of the Concept , State of the Evidence. *Review of Educational Research*, 74(1), 59–109. Retrieved from <http://www.jstor.org/stable/3516061>
- Gamberini, L., Breda, L., & Grassi, A. (2007). VIDEODOPE : Applying Persuasive Technology to Improve Awareness of Drugs Abuse Effects. *Virtual Reality*, 633–641.



- Harjumaa, M., & Oinas-kukkonen, H. (2009). Understanding Persuasive Software Functionality in Practice : A Field Trial of Polar FT60. *Proceedings of the 4th International Conference on Persuasive Technology*.
- Harjumaa, M., & Oinas-Kukkonen, H. (2007). Persuasion Theories and IT Design. *New York*, 311–314. [https://doi.org/10.1007/978-3-540-77006-0\\_37](https://doi.org/10.1007/978-3-540-77006-0_37)
- Harris, K. D. (2013). *In schools on track: Attorney general's 2013 report on california's elementary schools truancy & absenteeism crisis*. California.
- Hevner, A., & Chatterjee, S. (2012). Design Research in Information System. In R. Sharda & Stefan (Eds.), *Introduction to Design Science Research*. (Vol. 22, pp. 1–8). New York, USA: Springer Heidelberg London. <https://doi.org/10.1007/978-1-4419-6108-2>
- Hevner, A. R., March, S. T., Park, J., & Ram, S. (2004). Design Science in Information Systems Research. *MIS Quarterly*, 28(1), 75–105. <https://doi.org/10.2307/25148625>
- Holbert, R. L., & Tchernev, J. M. (2013). Media Influence as Persuasion. In P. D. James & S. Lijiang (Eds.), *The SAGE Handbook of Persuasion Developments in Theory and Practice* (Second Edi, pp. 36–52). United States of America: SAGE Publications, Inc. Retrieved from [http://www.sagepub.com/upm-data/51184\\_CH\\_3.pdf](http://www.sagepub.com/upm-data/51184_CH_3.pdf)
- Jamal Safri, S., Rabiatal Adawiah, A. R., Abdul Jalil, A., & Syed Mohamad, S. A. (2012). International Proceedings of Economics Development & Research. *International Proceedings of Economics Development and Research*, 55(28), 141–144. <https://doi.org/10.7763/IPEDR>.
- Josephine A., O. (2014). Differential Effectiveness of Contingency Management and Cognitive Restructuring in the Reduction of Truancy among Secondary School Adolescent. *Journal of Studies in Social Sciences*, 6(1), 15–22.
- Joshi, D., & Dutta, I. (2014). Emotional Intelligence among SEcondary Students: Role of Gender and Type of Schools. *MIER Journal of Educational Studies, Trends & Practices*, 4(2), 167–182.
- Kamaruzaman, M. F., & Zainol, I. H. (2014, September). The role of mobile advertising technology towards millennial social behavior. In 2014 International Conference on Computer, Communications, and Control Technology (I4CT) (pp. 66-69). IEEE.
- Kearney, C. A. (2008). An interdisciplinary model of school absenteeism in youth to inform professional practice and public policy. *Educational Psychology Review*, 20(3), 2008. Retrieved from <http://link.springer.com/article/10.1007/s10648-008-9078-3>
- Kimbel, T., & Clemens, E. V. (2014). The development and validation of the schools counseling program report card. *Professional School Counseling*, 18(1), 111–124.
- Krippendorff, K. (2013). Conceptualizing content analysis. In *Content Analysis: An Introduction to its Methodology* (Third Edit, p. 441). United States of America: Sage Publications Inc.
- Kuechler, B., & Vaishnavi, V. (2008). On theory development in design science research: anatomy of a research project. *European Journal of Information Systems*, 28(5), 75–105. <https://doi.org/10.1057/ejis.2008.40>

- Kuo, Y. C., & Kuo, Y. T. (2015, March). Online learning and dropout prevention in K-12 education. In Society for Information Technology & Teacher Education International Conference (pp. 364-373). Association for the Advancement of Computing in Education (AACE).& Teacher Education International Conference, Las Vegas, 2015, pp. 364-373.
- Liu, M., Jones, C., & Hemstreet, S. (1998). Interactive Multimedia Design and Production Processes. *Journal of Research on Computing in Education*, 30(3), 254–280. Retrieved from <http://www.editlib.org/p/87051/>
- Lockton, D., Harrison, D., & Stanton, N. A. (2010). The Design with Intent Method : A design tool for influencing user behaviour. *Applied Ergonomics*, 41(3), 382–392. <https://doi.org/10.1016/j.apergo.2009.09.001>
- Mayer, R. E. (2005). Chapter1: Introduction to Multimedia Learning. In *The Cambridge Handbook of Multimedia Learning* (p. 682). Santa Barbara: Cambridge University Press. Retrieved from [http://assets.cambridge.org/97805218/38733/excerpt/9780521838733\\_excerpt.pdf](http://assets.cambridge.org/97805218/38733/excerpt/9780521838733_excerpt.pdf)
- Mayor's Task Force on Truancy and Absenteeism. (2014). *Mayor's Task Force on Truancy and Absenteeism*. Retrieved March 12, 2014, from <http://www.nyc.gov/html/truancy/html/home/home.shtml>
- Mayer, R. E. (2014). Incorporating motivation into multimedia learning. *Learning and Instruction*, 29, 171–173. <https://doi.org/10.1016/j.learninstruc.2013.04.003>
- Mayer, R. E., & Moreno, R. (2002). Aids to computer-based multimedia learning. *Learning and Instruction*, 12(1), 107–119. [https://doi.org/10.1016/S0959-4752\(01\)00018-4](https://doi.org/10.1016/S0959-4752(01)00018-4)
- Maynard, B. R., McCrea, K. T., Pigott, T. D., & Kelly, M. S. (2013). Indicated Truancy Interventions for Chronic Truant Students: A Campbell Systematic Review. *Sagepub*, 18.
- Mintz, J., & Aagaard, M. (2012). The Application of Persuasive Technology to educational settings. *Educational Technology Research and Development*, 60(3), 483–499. <https://doi.org/10.1007/s11423-012-9232-y>
- Mohamad Hafiz, I., Siti Zulaiha, A., Arifah Fasha, R., & Nor Liyana, M. S. (2012). Smoke shooter: Introducing danger of smoking to school children with persuasive technology. *2012 IEEE Symposium on Humanities, Science and Engineering Research*, 1371–1375. <https://doi.org/10.1109/SHUSER.2012.6268819>
- Mohamad Lutfi, D., Sobihatun Nur, A. S., & Ariffin, A. M. (2016). A Review on Persuasive Technology (PT) Strategy in Awareness Study. *Indian Journal of Science and Technology*, 9(34). <https://doi.org/10.17485/ijst/2016/v9i34/100826>
- Morrison, T. G., Bryan, G., & Chilcoat, G. W. (2002). Using student generated comics in the classroom. *Journal of Adolescent & Adult Literacy*, 45(8), 758–767.
- Morgan, D. L. (1996). Focus groups. *Annual review of sociology*, 22(1), 129-152.
- Nielsen, J. (1997). The use and misuse of focus groups. *IEEE software*, 14(1), 94-95.
- Norhaini, A., Sinnadurai, K., Nair, S., & Sattar, M. (2011). Procedia Social and Behavioral Sciences ROOT CAUSES OF TRUANCY – A CASE STUDY. *Procedia - Social and Behavioral Sciences*, 00.
- Norhasilah, M. N., Aspaniza, H., & Nurul Farhana, J. (2012). Faktor-faktor Yang

- Mempengaruhi Gejala Ponteng Di Kalangan Pelajar Sekolah Menengah Kebangsaan Taman Selesa Jaya 2 , Skudai. *Journal of Educational Psychology & Counseling*, 5(March 2012), 12–29.
- Norshuhada, S., & Sharizan, H. (2013). Design research in software development: Constructing and linking research questions, objectives, methods and outcomes (2nd ed.). Kedah, Malaysia: UUM Press.
- Norzilah, M., Zatul Amilah, S., & Mudianan, M. (2010). A review of persuasive techniques in developing children educational system. *2010 International Conference on Science and Social Research (CSSR 2010)*, (CSSR), 1110–1113. <https://doi.org/10.1109/CSSR.2010.5773698>
- Özdemir, O., & Öner, I. E. (2015). The effects of simulations and animations on students' motivation in a computer course. *Journal of Participatory Educational Research*, 2, 53-59.
- Oinas-Kukkonen, H. (2013). A foundation for the study of behavior change support systems. *Personal and Ubiquitous Computing*, 17(6), 1223–1235. <https://doi.org/10.1007/s00779-012-0591-5>
- Oinas-Kukkonen, H., & Harjumaa, M. (2009). Persuasive Systems Design : Key Issues , Process Model , and System Features. *Communications of the Association for Information Systems*, 24(March 2009), 485–500.
- Olaitan, T., & A. Nayaya, M. (2014). Management of Disciplinary Problems in Secondary Schools: Jalingo Metropolis in Focus. *Global Journal of ...*, 13(14). Retrieved from <http://socialscienceresearch.org/index.php/GJHSS/article/view/898>
- Pantaleo, S. (2013). Paneling “matters” in elementary students’ graphic narratives. *Literacy Research and Instruction*, 52(2), 150–171. <https://doi.org/10.1080/19388071.2012.754973>
- Piaw, C. Y. (2012). Mastering research methods. Malaysia: McGraw-Hill.
- Piaw, C. Y. (2013). Mastering research statistics. Malaysia: McGraw-Hill.
- Pisan, Y., & Tan, C. T. (2012). Persuasive environments: Argumentation models in serious games. *2012 7th International Conference on Computer Science & Education (ICCSE)*, (ICCSE), 1319–1322. <https://doi.org/10.1109/ICCSE.2012.6295308>
- Preece, J. R., & Rogers, Y. Y. & Sharp, H.(2002). Interaction Design. Beyond Human–Computer Interaction.
- Qudaih, H. A., Bawazir, M. A., Usman, S. H., & Ibrahim, J. (2014). Security Awareness in an Organization, *10*(4), 180–186.
- Razali, N. M., Tan, E. M. M., Azmi, S. M., & Haini, M. F. (2016). Appropriateness of Animated TV Advertisements in Creating Awareness of Truancy Among Secondary School Students: A Case Study in Klang, Malaysia. In *Proceedings of the 2nd International Colloquium of Art and Design Education Research (i-CADER 2015)* (pp. 451-458). Springer, Singapore.
- Reid, K. (2003). *truancy and school*. London; New York: Routledge.
- Reid, K. (2010). Finding strategic solutions to reduce truancy. *Research in Education*, (1993), 1996. Retrieved from <http://manchester.metapress.com/index/HU242002441810R7.pdf>
- Reid, K. (2015). Managing and improving school attendance and behaviour: new



approaches and initiatives.

- Richard E., M. (2003). The promise of multimedia learning: using the same instructional design methods across different media. *Learning and Instruction*, 13(2), 125–139. [https://doi.org/10.1016/S0959-4752\(02\)00016-6](https://doi.org/10.1016/S0959-4752(02)00016-6)
- Rohani, C. H. (2015). Kemahiran Daya Tindak Remaja Ponteng. *PROCEDIA Studi Kasus Dan Intervensi Psikologi*, 3(1), 96–102.
- Salkind, N. J. (2010). Encyclopedia of research design Thousand Oaks, CA: SAGE Publications, Inc. doi: 10.4135/9781412961288
- Schnall, R., Bakken, S., Rojas, M., Travers, J., & Carballo-Diequez, A. (2015). mHealth technology as a persuasive tool for treatment, care and management of persons living with HIV. *AIDS and Behavior*, 19(2), 81-89
- Schinke, S., & Schwinn, T. M. (2017). Computer-based prevention and intervention to reduce substance use in youth. *Current addiction reports*, 4(4), 410-421.
- Sham, F. M., & Nazim, A. M. (2015). PENDEKATAN PSIKOLOGI DAKWAH DALAM MENANGANI REMAJA BERISIKO: FOKUS PENDEKATAN BIMBINGAN JIWA (Psychology of Da'wah to Deal Adolescents at Risk: Focusing on Spiritual Counselling). *Jurnal Hadhari: An International Journal*, 7(2), 63-73.
- Shamsul Azhar, S., Azura, A., Azimatun Noor, A., Mohd Rohaizat, H., Nazarudin, S., Rozita, H., & Rahmah, M. A. (2012). Psycho-Behavioural Factors Contributing To Truancy Among Malay Secondary School Students In Malaysia. *ASEAN Journal of Psychiatry*, 13(December), 10.
- Sekaran, U., & Bougie, R. (2010). Research methods for business: A skill building approach. Chichester: John Wiley & Sons Ltd. 2010.
- Simon, H. A. (1969). The Science of Design: Creating the Artificial. In *The sciences of the artificial* (Third Edit, Vol. 1, p. 111). London: MIT Press. [https://doi.org/10.1016/S0898-1221\(97\)82941-0](https://doi.org/10.1016/S0898-1221(97)82941-0)
- Simons, H. W., Morreale, J., & Gronbeck, B. (2001). The Psychology of Persuasion: Basic Principles. In *Persuasion In Society*.
- Skinner, B. F. (2012). Science And Human Behavior. Simon and Schuster.
- Sobihatun Nur, A. S., Wan Ahmad Jaafar, W., & Azillah, M. A. (2010). Using persuasive design principles in motivational feeling towards children dental anxiety (CDA). *Persuasive Technology 2010*, 223–237. Retrieved from [http://link.springer.com/chapter/10.1007/978-3-642-13226-1\\_23](http://link.springer.com/chapter/10.1007/978-3-642-13226-1_23)
- Spagnolli, A., Chittaro, L., & Gamberini, L. (2016). Interactive Persuasive Systems: A Perspective on Theory and Evaluation. *International Journal of Human Computer Interaction*, 32(3), 177-189
- Sutphen, R. D., Ford, J. P., & Flaherty, C. (2010). Truancy Interventions: A Review of the Research Literature. *Research on Social Work Practice*, 20(2), 161–171. <https://doi.org/10.1177/1049731509347861>
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, 53–55. <https://doi.org/10.5116/ijme.4dfb.8dfd>
- Thieme, A., Comber, R., Miebach, J., Weeden, J., Krämer, N., Lawson, S., & Olivier, P. (2012). “ We ’ ve Bin Watching You ” – Designing for Reflection and Social Persuasion to Promote Sustainable Lifestyles, 2337–2346.
- Tunggak, B., Ngadi, S., & Abu Naim, H. (2015). Delinkuen Pelajar Dan Cadangan

- Penyelesaiannya Menerusi Model Pembangunan Sahsia Remaja? Pelajar Muslim Bersepadu. *Jurnal Hadhari UKM*, 7(2), 11–30.
- Trochim, W. M., & Donnelly, J. P. (2005). *Research methods: The concise knowledge base*. Cincinnati, OH: Atomic Dog Publishing.
- Valkanova, N., Jorda, S., Tomitsch, M., & Moere, A. Vande. (2013). Reveal-it !: The Impact of a Social Visualization Projection on Public Awareness and Discourse, 3461–3470.
- Wan Ahmad Jaafar, W. Y., Rosli, C. D., & Munira, H. (2014). A Future Strategy Towards Smoking Cessation : Persuasive Multimedia Application ( PMA ) in Strengthening Motivation towards Smoking Prevention and Cessation. In *GLOBAL HEALTH 2014, The Third International Conference on Global Health Challenges* (pp. 37–41).
- Wan Ahmad Jaafar, W. Y., & Sobihatun Nur, A. S. (2010). Usability design strategies for children : Developing children ' s learning and knowledge in decreasing their dental anxiety. *US-China Education Review*, 7(9), 86–96.
- Weber, K. C., Saldanha, T. C. B., Silva, K. K. D. S. E., Santos, P. M. M., Souza, D. D. D., & Arroio, A. (2013). Introducing comics as an alternative scientific narrative in chemistry teaching. *Western Anatolia Journal of Educational Sciences*, 4(8), 1–14.
- Webster, J., & Watson, R. (2002a). Analyzing the past to prepare for the future: Writing a literature review. *Management Information Systems Quarterly*, 26(2), 1–12. Retrieved from <http://www.jstor.org/stable/pdfplus/4132319.pdf>
- Webster, J., & Watson, R. T. (2002b). Analyzing the past to prepare for the future writing a literature review. *Management Information Systems Research Center*, 26(2). <https://doi.org/10.2307/4132319>
- Wimmer, M. B. (2013). Increasing Understanding About School Refusal and Truancy. In M. B. Wimmer (Ed.), *Evidence-Based Practices for School Refusal and Truancy* (Second Edi, p. 130). West Milwaukee: National Association of School Pscycologist.
- Xu, J., Chen, P., Uglow, S., Scott, A., & Montague, E. (2012). Design Challenges and Guidelines for Persuasive Technologies that Facilitate Healthy Lifestyles. *Computer Technology and Application*, 3, 140–147.
- Yahaya, A., Boon, Y., Ramli, J., Hashim, S., & Idris, F. (2010). PERSEPSI PELAKUAN AGRESIF DAN FAKTOR YANG MEMPENGARUHI DI LIMA BUAH SEKOLAH DI KAWASAN BANDAR JOHOR BAHRU. *Jurnal Teknologi*, 53(Sept 2010), 75–94.
- Yeo, A. C., Rahim, M., & Ren, Y. Y. (2008). Use of Persuasive Technology to Change End- Users ' IT Security Aware Behaviour : A Pilot Study. *World Academy of Science, Engineering and Technology*, 2, 202–208.
- Zahari, I., & Low, S. S. (2013). *Senario Ponteng Pelajar Sekolah Menengah: Suatu Analisis Statistik* (Cetakan Pe). Kuala Lumpur: Yayasan Pencegahan Jenayah Malaysia (MCPF), Kementerian Pelajaran Malaysia.
- Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2013). *Business research methods*. Cengage Learning.

## APPENDIX A

### Appendix A: Sample of Approval Letter from Ministry Of Education (MOE) Malaysia

	KEMENTERIAN PENDIDIKAN MALAYSIA MINISTRY OF EDUCATION MALAYSIA BAHAGIAN PERANCANGAN DAN PENYELIDIKAN DASAR PENDIDIKAN EDUCATIONAL PLANNING AND RESEARCH DIVISION ARAS 1-4, BLOK E8 KOMPLEKS KERAJAAN PARCEL E PUSAT PENTADBIRAN KERAJAAN PERSEKUTUAN 62604 PUTRAJAYA		KEMENTERIAN PENDIDIKAN MALAYSIA
		Telefon : 03-8884 6591 Faks : 03-8884 6579	
		Ruj. Kami : KPMSP.600-3/2/3JLD9 (26)	
		Tarikh : 20 Januari 2016	

**Mohamad Lutfi Bin Dolhalit**  
**K.P.730312045297**

No.32, Jalan Mahogany 2  
Taman Mahogany  
06010 Changlun  
Kedah

Tuan,

**KELULUSAN UNTUK MENJALANKAN KAJIAN DI SEKOLAH, INSTITUT PENDIDIKAN GURU, JABATAN PENDIDIKAN NEGERI DAN BAHAGIAN DI BAWAH KEMENTERIAN PENDIDIKAN MALAYSIA**

Perkara di atas adalah dirujuk.

2. Sukacita dimaklumkan bahawa permohonan tuan untuk menjalankan kajian seperti di bawah telah diluluskan.

**"A Conceptual Model of Presuasive Multimedia in Truancy Awareness (PMTA) For Secondary School Students "**

3. Kelulusan ini adalah berdasarkan kepada kertas cadangan penyelidikan dan instrumen kajian yang dikemukakan oleh tuan kepada Bahagian ini. Walau bagaimanapun kelulusan ini bergantung kepada kebenaran Jabatan Pendidikan Negeri dan Pengetua / Guru Besar yang berkenaan.

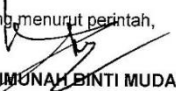
4. Surat kelulusan ini sah digunakan bermula dari 20 Januari 2016 hingga 31 Disember 2016.

5. Tuan juga mesti menyerahkan senaskhah laporan akhir kajian dalam bentuk *hardcopy* bersama salinan *softcopy* berformat Pdf di dalam CD kepada Bahagian ini. Tuan diingatkan supaya mendapat kebenaran terlebih dahulu daripada Bahagian ini sekiranya sebahagian atau sepenuhnya dapatan kajian tersebut hendak dibentangkan di mana-mana forum, seminar atau diumumkan kepada media massa.

Sekian untuk makluman dan tindakan tuan selanjutnya. Terima kasih.

**"BERKHIDMAT UNTUK NEGARA"**


Saya yang menurut perintah,

  
**(DR. MAIMUNAH BINTI MUDA)**  
Ketua Unit  
Sektor Penyelidikan dan Penilaian  
d.p. Pengarah  
Bahagian Perancangan dan Penyelidikan Dasar Pendidikan  
Kementerian Pendidikan Malaysia


## APPENDIX B

### Appendix B: Sample of Application Letter and Endorsement from the School Principle

1



**PUSAT PENGAJIAN TEKNOLOGI MULTIMEDIA DAN KOMUNIKASI**  
**SCHOOL OF MULTIMEDIA TECHNOLOGY AND COMMUNICATION**  
Universiti Utara Malaysia  
06010 UUM SINTOK  
KEDAH DARUL AMAN  
MALAYSIA



**UUM**  
Universiti Utara Malaysia

Tel: 604-928 5801  
Faks (Fax): 604-928 5804  
Laman Web (Web): <http://www.smmtc.uum.edu.my>

---

**KEDAH AMAN MAKMUR . BERSAMA MEMACU TRANSFORMASI**

UUM/CAS(SMMTC)/P-30  
26 Oktober 2015

Pejabat Pendidikan Daerah  
Kubang Pasu  
06000 Jitra Kedah

Tuan/Puan

**PERMOHONAN BAGI MENJALANKAN KAJIAN AWALAN & KAJIAN EKSPERIMENTAL.**

Dengan segala hormatnya perkara di atas adalah dirujuk.

Adalah dimaklumkan bahawa pelajar seliaan saya mengikut butiran di bawah ingin memohon kebenaran untuk menjalankan kajian awalan dan kajian eksperimental di sekolah-sekolah menengah di Daerah Kubang Pasu, Kedah bagi memenuhi keperluan pengajian beliau di peringkat ijazah Doktor Falsafah (Ph. D).

Nama : Mohamad Lutfi B. Dolhalit  
No. Matrik : S95668  
No. KP : 730312045297  
No Tel : 012-2694533

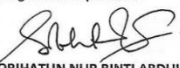
Untuk makluman pihak tuan/puan kajian beliau adalah bertajuk "Persuasive Multimedia Model In Truancy Awareness (PMTA) For Secondary School Students" sinopsis kajian adalah seperti pada lampiran yang disertakan.

Sehubungan itu, adalah diharapkan permohonan ini mendapat persetujuan dan sokongan dari pihak tuan/puan supaya kajian ini dapat dijalankan dengan jayanya di samping beliau dapat memenuhi tugas dan tanggungjawab sebagai penyelidik dan pendidik.


Kerjasama dan perhatian tuan/puan didahului dengan jutaan terima kasih.


Sekian.

Saya yang menurut perintah

  
**DR. SOBIHATUN NUR BINTI ABDUL SALAM**  
Penyelia Pelajar  
Pusat Pengajian Teknologi Multimedia dan Komunikasi  
UUM College of Arts and Sciences  
Universiti Utara Malaysia  
Tel: 019-5597417

*Kebanyakan dibari kepada  
Bu. Mohamad Lutfi bin  
Dolhalit untuk  
melaksanakan kajian ini  
di sekolah berkenaan.*

  
**ABDUL RAZMIL BIN HAFIE PONG**  
Penolong Pegawai Pendidikan Daerah  
Pengurusan Sekolah (Menengah)  
Unit Pengurusan Sekolah  
i.p. Pegawai Pendidikan Daerah  
Kubang Pasu  
Kedah Darul Aman  
28/10/2015  
019-4421075





PUSAT PENGAJIAN TEKNOLOGI MULTIMEDIA DAN KOMUNIKASI  
SCHOOL OF MULTIMEDIA TECHNOLOGY AND COMMUNICATION  
Universiti Utara Malaysia  
06010 UUM SINTOK  
KEDAH DARUL AMAN  
MALAYSIA



Tel: 604-928 5801  
Faks (Fax): 604-928 5804  
Laman Web (Web): <http://www.smmtc.uum.edu.my>

**"MUAFKAT KEDAH"**

Pengetua,  
Sekolah Menengah Kebangsaan Air Keroh,  
Jalan Tasik Utama 21,  
75450 Ayer Keroh,  
Melaka

Tuan,

**PERMOHONAN BAGI MENJALANKAN KAJIAN EKSPERIMEN**

Dengan segala hormatnya perkara di atas adalah dirujuk.

Adalah dimaklumkan bahawa pelajar dengan butiran di bawah ingin memohon kebenaran untuk menjalankan kajian eksperimen di sekolah Tuan bagi memenuhi keperluan pengajian beliau di peringkat Ijazah Doktor Falsafah (PhD).

Nama : Mohamad Lutfi B. Dolhalit  
No. Matrik : S95668  
No. Telefon : 012-2694533  
Tajuk Kajian : Persuasive Multimedia Model in Truancy Awareness (PMTA)  
For Secondary School Students  
Pusat Pengajian : Pusat Pengajian Teknologi Multimedia dan Komunikasi  
(SMMTC), Universiti Utara Malaysia (UUM)  
Penyelia : Dr. Sobihatun Nur Abdul Salam & Dr. Ariffin Abdul Mutalib.

Sehubungan dengan itu, bersama-sama ini dilampirkan surat kebenaran menjalankan penyelidikan dari Bahagian Perancangan dan Penyelidikan Dasar Pendidikan, Kementerian Pendidikan Malaysia (KPM) untuk rujukan pihak Tuan.

Adalah diharapkan permohonan ini mendapat persetujuan dan sokongan daripada pihak Tuan supaya kajian ini dapat dijalankan dengan jayanya.

Kerjasama dan perhatian Tuan didahului dengan jutaan terima kasih.

Sekian.

Saya yang menurut perintah

**DR. NORSIAH ABDUL HAMID**

Dekan  
Pusat Pengajian Teknologi Multimedia dan Komunikasi (SMMTC)  
Universiti Utara Malaysia (UUM)

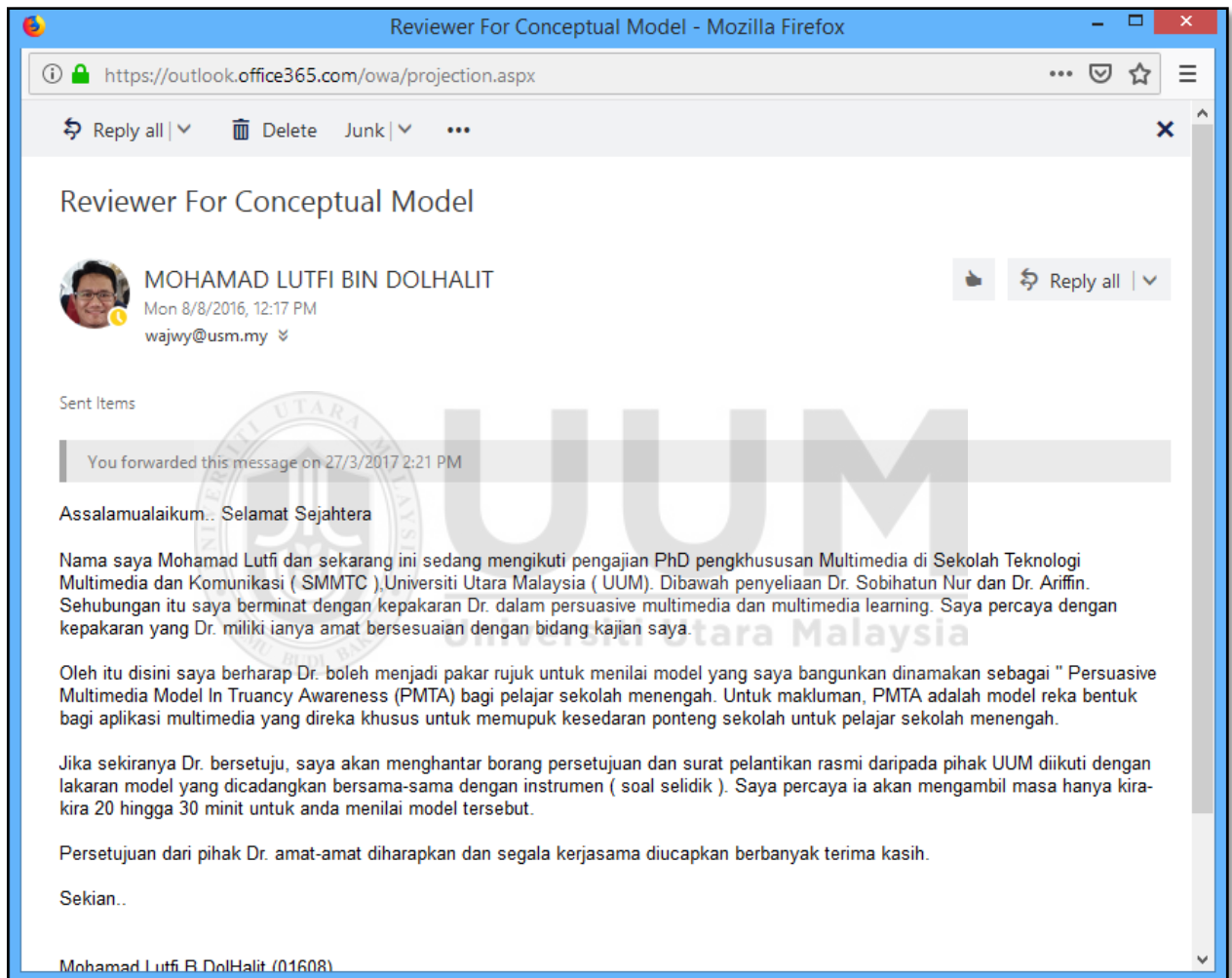
Universiti Pengurusan Terkemuka  
The Eminent Management University





## APPENDIX C

### Appendix C: Sample of Invitation Email to Expert and Response Email from the Expert





MOHAMAD LUTFI BIN DOLHALIT

Tue 16/8/2016, 12:08 PM



PMTA\_Model.pdf  
198 KB



Consent form.pdf  
214 KB



2 attachments (412 KB) Download all Save all to OneDrive - Universiti Teknikal Malaysia Melaka

Assalamualaikum;

Berbanyak terima kasih atas kesudian menjadi expert reviewer.

Dilampirkan bersama email ini 2 jenis borang untuk rujukan, seperti dibawah:

1. PMTA Model (Untuk rujukan semasa penilaian).
2. Consent Form. pdf (Perlu discan dan dikembalikan kepada saya)

**Surat Lantikan akan saya emailkan selepas selesai penilaian model tersebut.**

Penilaian dan komen terhadap PMTA model boleh diisi melalui Expert Reviewer Form dibawah. Sila klik link Google Form dibawah;



**UUM**  
Universiti Utara Malaysia

## APPENDIX D

### Appendix D: Sample of Consent Form for Expert

School of Multimedia Technology and Communication (SMMTC)  
UUM College of Art and Sciences  
Universiti Utara Malaysia

Consent form of expert reviewer for **"Persuasive Multimedia Model in Truancy Awareness (PMTA) For Secondary School Students"**

1. I have accepted the official appointment letter from UUM. With the expertise and the existing knowledge that I have, I volunteer to be an expert reviewer for **"Persuasive Multimedia Model in Truancy Awareness (PMTA) For Secondary School Students"** proposed by Mohamad Lutfi Dolhalit under supervision of Dr. Sobihatun Nur Abdul Salam and Dr. Ariffin Abdul Mutalib of Universiti Utara Malaysia (UUM).
2. I understand that the expert review process is designed to gather information and comments in improving the proposed model.
3. I understand that no part of the proposed model may be reproduced, stored in retrieved system, or transmitted in any form or by any means, electronic, mechanical photocopying, recording, or otherwise, without prior permission from the researcher and her supervisors.
4. I understand that the researcher will not identify me by name in any report using information obtained from the questionnaire, and that my confidentiality as a participant in this study will remain secure. Subsequent uses of records and data will be subject to standard data use policies which protect the anonymity of individuals and institutions.
5. I understand that this study has been reviewed and approved by the School of Multimedia Technology and Communication (SMMTC), College of Arts and Science, UUM.
6. I have read and understood the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.
7. I am given a copy of this consent form.

<b>My Signature:</b>   <b>Official Stamp:</b>	<b>Date:</b>   <b>Mohamad Lutfi Dolhalit</b>
--	---

For further information, please contact: (lutfi@utem.edu.my), (sobihatun@uum.edu.my) and (am.ariffin@uum.edu.my).

## APPENDIX E

### Appendix E: Sample of Appointment Letter for Expert

	<p><b>PUSAT PENGAJIAN TEKNOLOGI MULTIMEDIA DAN KOMUNIKASI</b> <b>SCHOOL OF MULTIMEDIA TECHNOLOGY AND COMMUNICATION</b> Universiti Utara Malaysia 06010 UUM SINTOK KEDAH DARUL AMAN MALAYSIA</p>	 <p><b>UUM</b> Universiti Utara Malaysia</p>
<p style="text-align: right;">Tel: 604-928 5801 Faks (Fax): 604-928 5804 Laman Web (Web): <a href="http://www.smmtc.uum.edu.my">http://www.smmtc.uum.edu.my</a></p>		
<p><b>KEDAH AMAN MAKMUR • BERSAMA MEMACU TRANSFORMASI</b></p>		
<p>UUM/CAS(SMMTC)/P-30 22 Ogos 2016</p>		
<p>Associate Professor Dr. Wan Ahmad Jaafar Wan Yahaya Director, Centre for Alumni Liaison (Pusat Perhubungan Alumni) Universiti Sains Malaysia (USM) Penang.</p>		
<p>Dear Sir,</p>		
<p><b>APPOINTMENT AS EXPERT REVIEWER FOR "PERSUASIVE MULTIMEDIA MODEL IN TRUANCY AWARENESS (PMTA) FOR SECONDARY SCHOOL STUDENTS"</b></p>		
<p>With regard to the above matter, it is my pleasure to appoint you as an expert reviewer for the following PhD candidate's proposed model:</p>		
<p><b>Student Name</b></p>	:	Mohamad Lutfi Dolhalit
<p><b>Matric No</b></p>	:	S95668
<p><b>Research Title</b></p>	:	Persuasive Multimedia Model in Truancy Awareness (PMTA) For Secondary School Students"
<p><b>School</b></p>	:	School of Multimedia Technology and Communication
<p><b>Supervisor</b></p>	:	Dr. Sobihatun Nur Abdul Salam and Dr. Ariffin Abdul Mutalib
<p>Please give your expert opinion by completing the review form.</p>		
<p>Your corporation, time and assistance are greatly appreciated.</p>		
<p>Thank you.</p>		
<p>Sincerely Yours,</p>		
		
<p><b>DR. NORSIAH ABDUL HAMID</b> Dean School of Multimedia Technology and Communication (SMMTC) UUM College of Art and Sciences Universiti Utara Malaysia</p>		
<p>Universiti Pengurusan Terkemuka The Eminent Management University</p>		
		

## APPENDIX F

### Appendix F: Expert Review (Instrument)

#### INSTRUMENT FOR EXPERT REVIEW:

#### **PERSUASIVE MULTIMEDIA MODEL IN TRUANCY AWARENESS (PMTA) FOR SECONDARY SCHOOL STUDENTS.**

---

**Dear Prof/Dr./Sir/Mdm**

#### **EXPERT REVIEW ON PERSUASIVE MULTIMEDIA MODEL IN TRUANCY AWARENESS (PMTA).**

My name is Mohamad Lutfi Dolhalit and currently doing PhD study in multimedia at University Utara Malaysia (UUM). I am delighted to inform that you have been selected to participate in this research.

My PhD research propose the “**Persuasive Multimedia Model in Truancy Awareness (PMTA) For Secondary School Students** “.PMTA is a design model of multimedia application which is specifically designed to foster truancy awareness for secondary school students. The target users of the truancy awareness application are Malaysian secondary school students 12 to 14 of ages. Therefore the objective of this expert review is to:

1. Clarify of the terminologies used in this research.
2. Evaluate the relevant of the proposed components.

The information supplied will be treated as confidential, and only be used as a research purposes which will be anonymously reported in academic publications.

Please feel free to contact me by email ([lutfi@uum.edu.my](mailto:lutfi@uum.edu.my)) for any queries or my supervisor email ([sobihatun@uum.edu.my](mailto:sobihatun@uum.edu.my)) and ([am.ariffin@uum.edu.my](mailto:am.ariffin@uum.edu.my)).

Your kind cooperation and assistance are highly appreciated.

## EXPERT REVIEW FORM

### EXPERT REVIEW DETAILS

<b>Name*</b>	<input style="width: 90%;" type="text"/>
<b>Age</b>	<input style="width: 90%;" type="text"/>
<b>Gender</b>	<input type="checkbox"/> Male <input type="checkbox"/> Female
<b>Organization/ Institution/</b>	<input style="width: 90%;" type="text"/>
<b>Experience*</b>	<input style="width: 90%;" type="text"/> [years]

*\*Compulsory*

### ITEMS FOR REVIEW

Based on the proposed PMTA model (as depicted in the Appendix A), please tick (✓) your choice.

1.0	Terminology	Needs very detail explanations	Need some explanations	Is easy to understand
	Persuasive Multimedia			
	Truancy			
	Awareness			
	Macrosuasion Strategies			
	Microsuasion Strategies			
	Learning Theories			
	Learning Approach			
	Instructional Strategy			
	Instructional Design Model			

2.0	The proposed main components are relevant	Some are definitely not relevant	Some may be not relevant	All are relevant
	2.1 Intent			
	2.2 Strategy			
	2.3 Even			
	2.4 Prototyping			

#### 2.1. Sub component: Intent

2.1	The proposed elements in the following sub components are relevant	Some are definitely not relevant	Some may be not relevant	All are relevant
	<b>Intent</b>			
	Truancy			
	Truancy awareness components			
	Truancy awareness contents			

#### 2.2. Sub component: Strategy

2.2	The proposed elements in the following sub components are relevant	Some are definitely not relevant	Some may be not relevant	All are relevant
	<b>Strategy</b>			
	Macrosuasion Strategy (Persuasive Context)			
	Microsuasion Strategy (Multimedia Context)			

#### 2.3. Sub component: Event

2.3	The proposed elements in the following sub components are relevant	Some are definitely not relevant	Some may be not relevant	All are relevant
	<b>Event</b>			
	Learning Theories			
	Learning Approach			
	Instructional Strategy			
	Instructional Design Model			

#### 2.4. Sub component: Prototyping

2.4	The proposed elements in the following sub components are relevant	Some are definitely not relevant	Some may be not relevant	All are relevant
	<b>Prototyping</b>			
	Preproduction			
	Production			
	Postproduction			

3	The term used are easy to understand	Yes		No	
4	The models for representing the problem are relevant.	Yes		No	
5	The models for representing the solution are relevant.	Yes		No	
6	The connections and flows of all the components are logical	Yes		No	
7	The model is applicable to the development of truancy awareness prototype.	Yes		No	
8	Overall, the model is readable.	Yes		No	
9	Overall, the model is applicable.	Yes		No	

10. Would you suggest to add any relevant main components/sub-components and element in this model? Please describe your suggestion.



11. Would you suggest to remove any sub-phases, tasks or activities? Please describe your suggestion.

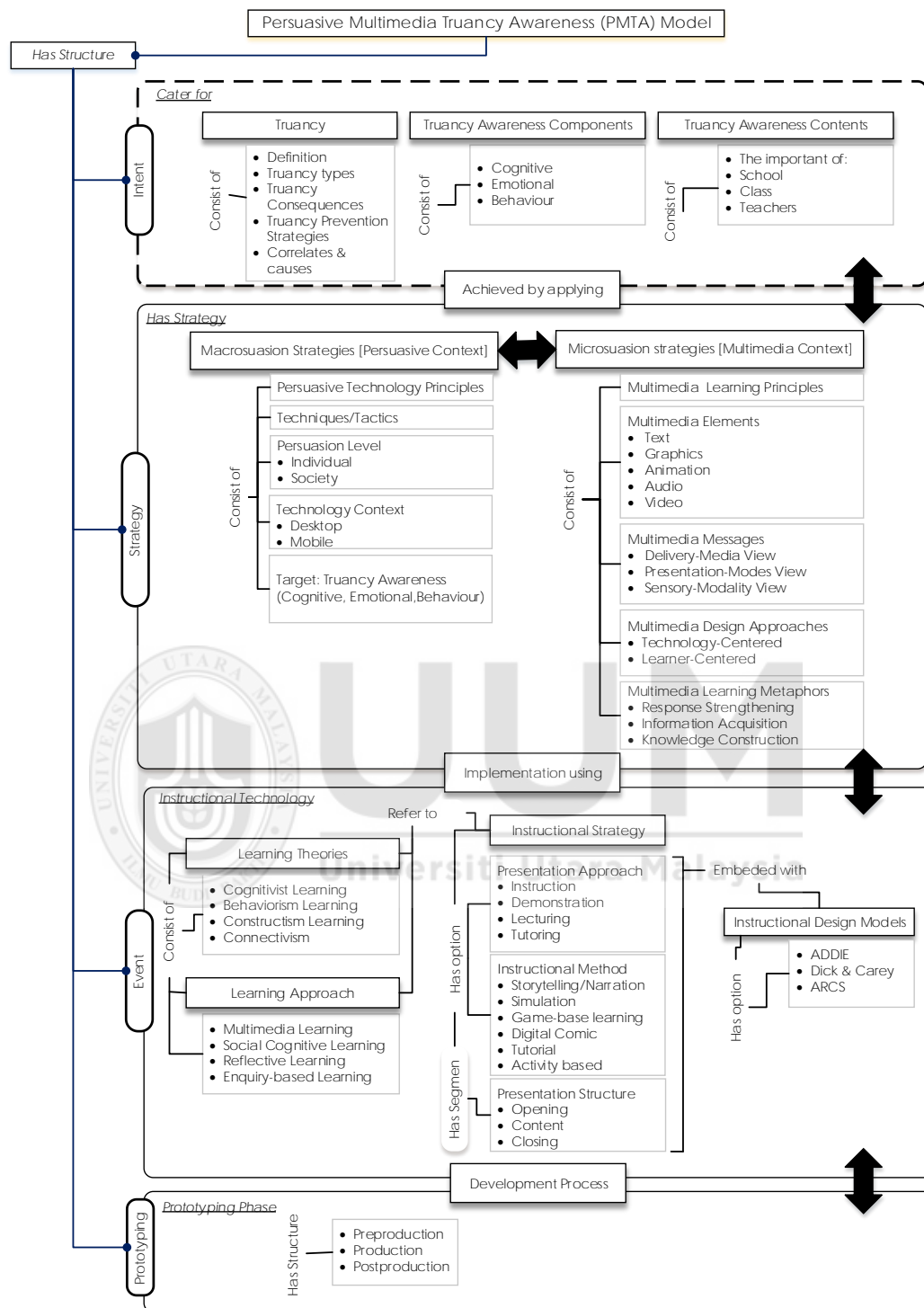


12. Would you suggest any updates or improvements related to the PMTA model in term of sub-phases, tasks or activities? Please explain your suggestion?

13. Could the model be made more applicable in a prototype development? How?



**UUM**  
Universiti Utara Malaysia



## 1. General Terminology of PMTA model.

Terminology	Descriptions
Persuasive Multimedia	Multimedia presentation that supports the learner's construction of knowledge from a combination of different elements of media using computers to change attitudes and behaviours.
Truancy	Absence from schools without any medical certificate or formal parental acknowledgment in writing.
Awareness	Ability to evaluate and gives attention and evaluation of ourselves and compare the current behaviour to our internal standards and values
Macrosuasion Strategies	Refers to persuasive technology context involves the overall strategy and purpose of the system, application or products that are used exclusively for persuasion.
Microsuasion Strategies	Refers multimedia context which focus to smaller persuasive techniques or individual techniques that are suitable to achieve the overall goal (macrosuasion).
Learning Theories	Any conceptual frameworks describing how information is absorbed, processed, and retained during learning.
Learning Approach	Understanding on how student study and how the learning occurred. It encompasses children's engagement and participation in the classroom.
Instructional Strategy	Refer to method used in teaching the learning content and how it is delivered
Instructional Design Model	Refer to any process of creating "instructional experiences which make the acquisition of knowledge and skill more efficient, effective, and appealing.

## 2. Explanation of PMTA main components.

Component	Descriptions
Intent	Focus on the intended outcome of the persuasive system towards user's attitude or behaviour or both.
Strategy	Refer to any form and/or information or content that is intended to be embedded.
Event	Focus on implementation of the persuasive system from the problem domain to encourage users to set goals.
Prototyping	Focus on the development process of PMTA application for evaluation and demonstration.

## APPENDIX G

### Appendix G: Q-PMTA Instrument

## BAHAGIAN 2: UJIAN POS

### PERISIAN MULTIMEDIA: KITA KAN KAWAN

#### Pengenalan:

1. Terima kasih kerana bersetuju untuk melibatkan diri dalam pengujian perisian multimedia ini.
2. Untuk makluman segala maklumat yang diberikan adalah sulit dan hanya untuk tujuan kajian semata-mata.
3. Segala pertanyaan perlulah diajukan semasa sesi ini dijalankan.

#### Arahan:

1. Menggunakan komputer, anda akan didedahkan dengan perisian multimedia yang dikenali sebagai “**Kita Kan Kawan**”.
2. Layari perisian multimedia tersebut sehingga tamat.
3. Setelah selesai, isikan jawapan yang bersesuaian pada **BORANG UJIAN POS** yang telah disediakan pada lampiran ini.
4. Sila jawab dengan jujur kenyataan no.1 hingga no.29 dengan membulatkannya.

## BORANG UJIAN POS

**Kad Pengenalan:**

**Jantina:** Lelaki ☐ Perempuan ☐

**Maklumat Pelajar** **Bangsa:** Melayu ☐ Cina ☐ India ☐ Lain-lain ☐

**Umur:**

**Tanda Tangan:**

**ARAHAN:** Berdasarkan pengalaman anda selepas menggunakan **PERISIAN MULTIMEDIA: KITA KANKAWAN**. Sila jawab dengan jujur kenyataan no.1 hingga no.29 dengan membulatkannya. Sila gunakan skala seperti yang ditunjukkan dibawah ini:

Sangat Tidak 
←
→
 Sangat Bersetuju

1      2      3      4      5      6      7

	Kriteria	Skala						
1.	Saya berminat datang ke sekolah untuk belajar	1	2	3	4	5	6	7
2.	Saya mendapat pendidikan terbaik di sekolah.	1	2	3	4	5	6	7
3.	Segala yang dipelajari di sekolah adalah penting.	1	2	3	4	5	6	7
4.	Saya berminat dengan tugas yang diberikan kepada saya.	1	2	3	4	5	6	7

5.	Saya sentiasa berusaha menyiapkan tugas sekolah.	1	2	3	4	5	6	7
6.	Saya mengulangkaji pelajaran walaupun tiada peperiksaan.	1	2	3	4	5	6	7
7.	Saya mendapat banyak ilmu semasa di sekolah	1	2	3	4	5	6	7
8.	Saya mempunyai cita-cita sendiri	1	2	3	4	5	6	7
9.	Saya ada matlamat hidup yang jelas.	1	2	3	4	5	6	7
10.	Pelajaran yang diajar adalah penting demi masa depan saya.	1	2	3	4	5	6	7
11.	Saya berasa gembira semasa di sekolah.	1	2	3	4	5	6	7
12.	Saya gembira rakan-rakan menghormati saya	1	2	3	4	5	6	7
13.	Guru di sekolah sentiasa membantu saya.	1	2	3	4	5	6	7
14.	Saya menghormati guru di sekolah	1	2	3	4	5	6	7
15.	Guru menghormati saya sebagai seorang murid	1	2	3	4	5	6	7
16.	Saya sedar guru itu penting untuk mendidik saya	1	2	3	4	5	6	7

17.	Saya gembira melaksanakan tugas di sekolah	1	2	3	4	5	6	7
18.	Saya gembira melaksanakan aktiviti di sekolah	1	2	3	4	5	6	7
19.	Saya sedar pelajaran itu penting	1	2	3	4	5	6	7
20.	Saya sedar pelajaran boleh mengubah kehidupan saya.	1	2	3	4	5	6	7
21.	Saya sedar ponteng boleh merosakkan masa depan saya	1	2	3	4	5	6	7
22.	Saya datang ke sekolah atas kemahuan saya sendiri.	1	2	3	4	5	6	7
23.	Saya berpura-pura melakukan tugas yang diberikan oleh guru.	1	2	3	4	5	6	7
24.	Saya ponteng kerana pelajaran tidak penting kepada saya.	1	2	3	4	5	6	7
25.	Saya sentiasa mematuhi segala peraturan sekolah.	1	2	3	4	5	6	7
26.	Saya sentiasa menimbulkan masalah dengan pihak sekolah.	1	2	3	4	5	6	7
27.	Saya tidak suka ponteng sekolah	1	2	3	4	5	6	7
28.	Saya mampu menolak ajakan rakan untuk ponteng	1	2	3	4	5	6	7

29.	Saya berusaha melibatkan diri dalam segala aktiviti sekolah	1	2	3	4	5	6	7
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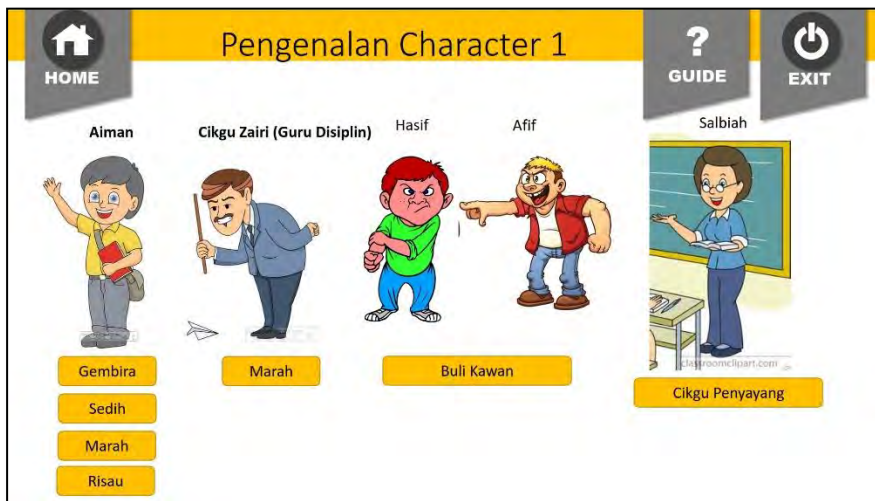




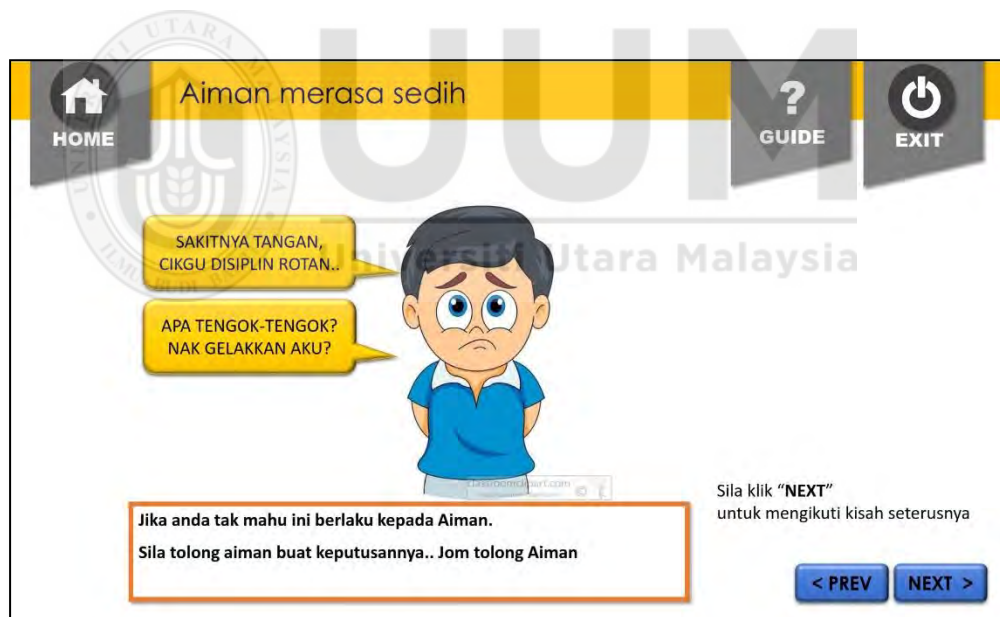
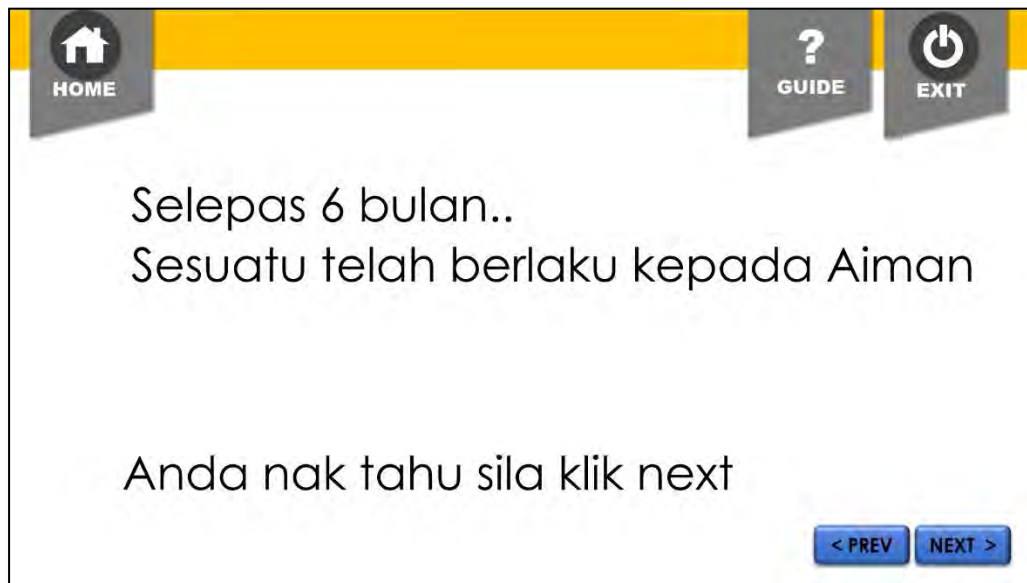
## APPENDIX H

### Appendix H: Storyboard of PMTA Prototype









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Suatu hari di bilik guru disiplin

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EXIT

Apa hendak jadi dengan kamu ni? Bukan sahaja tidak minat ke sekolah belajar, malah semakin samseng sekarang.

Bagi tahu saya kenapa jadi begini..

Sila klik "Next"

Aiman didenda kerana melakukan kesalahan disiplin terutamanya ponteng

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EXIT

Assalamualaikum, nama saya Aiman. Saya baru berpindah dari luar negara.

Wow, sudah berapa lama awak tinggal di sana?

Hampir 10 tahun. Kini bapa saya ditugaskan semula di Malaysia.

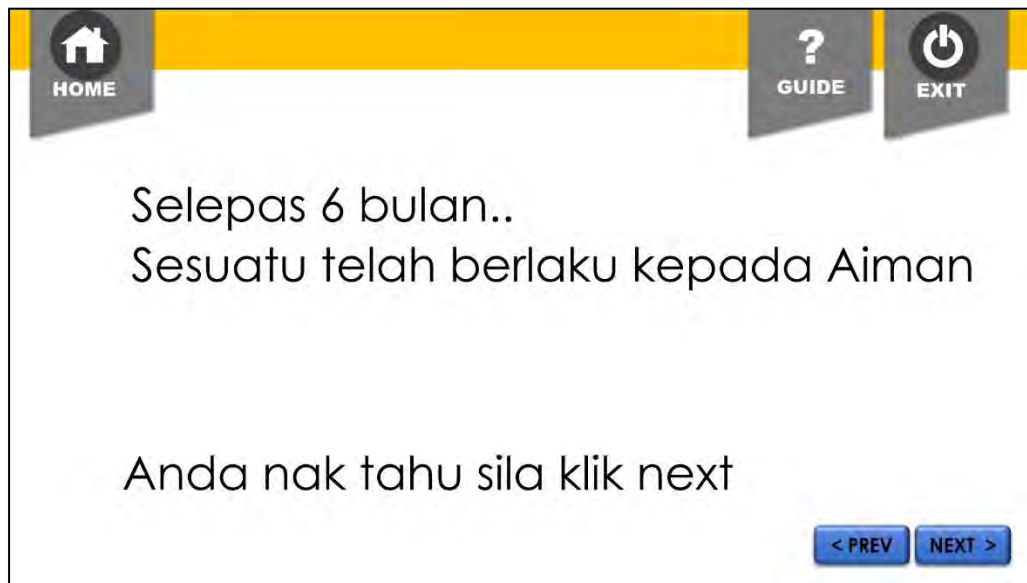
Pelajar semua. Kita ada pelajar baru hari ini.

Sekolah ini merupakan sekolah cemerlang peringkat kebangsaan. Tahniah Aiman

Sila klik "NEXT" untuk mengikuti kisah seterusnya

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Aiman mula mempersoalkan kenapa dia perlu bersekolah

GUIDE

EXIT

Setiap hari kena pergi sekolah.. Tapi kenapa?? Kena pergi sekolah.. Kan lebih selesa duduk di rumah kan lebih baik ponteng..??

Boleh tolong tak ?Kenapa aku mesti pergi sekolah ye.. ??

Beritahu Aiman kenapa dia perlu bersekolah..

- Mendapat pengetahuan dan mencapai cita-cita yang diingini
- Belajar bekerjasama ,tanggungjawab serta menghormati guru dan rakan
- Supaya cikgu boleh mengawal tingkah-laku saya dan rakan-rakan

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EXIT

Setiap hari kena pergi sekolah.. Tapi kenapa?? Kena pergi sekolah.. Kan lebih selesa duduk di rumah kan lebih baik ponteng..??

**Tahniah..  
(feedback & reflection)**

Beritahu Aiman kenapa dia perlu bersekolah..

uan dan  
ng diingini  
,tanggungjawab serta  
an rakan  
mengawal  
n rakan-rakan

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